

What is Claimed is:

1. A power module for AC/AC power conversion is a power module in which multiple converter components constituting a multiple phase converter (10), multiple smoothing condensers (5), and multiple inverter components constituting a multiple phase inverter (20) can be mounted on a substrate which has been formed necessary wirings,  
the power module is arranged in that at least a part of converter components, at least a part of smoothing condensers (5), and at least a part of inverter components complying with required specification of the power module are mounted on the substrate, and that necessary jumper means are provided.
2. A power module as set forth in claim 1, wherein a three phase converter (10) is employed as the multiple phase converter (10), the number of smoothing condensers (5) is determined to be 2, and a three phase inverter (20) is employed as the multiple phase inverter (20).
3. A power module as set forth in claim 2, wherein the three phase converter (10) comprises a pair of transistors (1) serially connected to one another for each phase, and diodes (2) each connected in parallel to each transistor (1), at least a part of diodes (2) and/or at least a part of transistors (1) and diodes (2) complying with the required specification of the power module are mounted on the substrate, and necessary jumper means are provided.
4. A power module as set forth in claim 2, wherein the three phase

converter (10) comprises a pair of transistors (1) serially connected to one another for each phase, and diodes (2) each connected in parallel to each of the transistors (1), at least a part of diodes (2) and/or at least a part of transistors (1) and diodes (2) complying with the required specification of the power module are mounted on the substrate, and necessary jumper means are provided.

5. A power module as set forth in claim 2, wherein the three phase converter (10) comprises transistors (11) serially connected to one another and a pair of first diodes (12) reversely connected for each phase, and a diode bridge (13) having a pair of connection points opposing to one another, each of the connection points being connected to the emitter terminal of the transistor (11) and the collector terminal of the transistor (11), and having another pair of connection points which are determined to be input and output points, and at least a part of transistors (11), the diode bridge (13), and the first diodes (12) complying with the required specification of the power module are mounted on the substrate, and necessary jumper means are provided.

6. A power module as set forth in claim 2, wherein the three phase converter (10) comprises transistors (11) serially connected to one another and a pair of first diodes (12) reversely connected for each phase, and a diode bridge (13) having a pair of connection points opposing to one another, each of the connection points being connected to the emitter terminal of the transistor (11) and the collector terminal of the transistor

(11), and having another pair of connection points which are determined to be input and output points, and only at least a part of first diodes (12) complying with the required specification of the power module are mounted on the substrate, and necessary jumper means are provided.

7. A power module as set forth in claim 2, wherein the three phase converter (10) comprises transistors (11) serially connected to one another and a pair of first diodes (12) reversely connected for each phase, and a diode bridge (13) having a pair of connection points opposing to one another, each of the connection points being connected to the emitter terminal of the transistor (11) and the collector terminal of the transistor (11), and having another pair of connection points which are determined to be input and output points, and at least a part of transistors (11) and the diode bridge (13) complying with the required specification of the power module are mounted on the substrate, and at least a part of first diodes (12) complying with the required specification of the power module are mounted on the substrate, and necessary jumper means are provided.

8. A power module as set forth in claim 2, wherein the three phase converter (10) comprises transistors (11) serially connected to one another and a pair of first diodes (12) forwardly connected for each phase, and pairs of second diodes (15) each reversely connected between the emitter terminal of the transistor (11) and the collector terminal of the transistor (11), each pair of second diodes (15) being serially connected to one another, and at least a part of transistors (11) and second diodes (15)

complying with the required specification of the power module are mounted on the substrate, and at least a pair of first diodes (12) complying with the required specification of the power module are mounted on the substrate, and necessary jumper means are provided.

9. A power module as set forth in claim 2, wherein the three phase converter (10) comprises transistors (11) serially connected to one another and a pair of first diodes (12) forwardly connected for each phase, and pairs of second diodes (15) each reversely connected between the emitter terminal of the transistor (11) and the collector terminal of the transistor (11), each pair of second diodes (15) being serially connected to one another, and only at least a part of first diodes (12) complying with the required specification of the power module are mounted on the substrate, and necessary jumper means are provided.

10. A power module as set forth in claim 3 or claim 6, wherein only at least a part of diodes (2) are mounted on the substrate, and a reactor (8) is connected outside of the exterior between the converter (10) and the smoothing condenser (5).

11. A power module as set forth in claim 9, wherein only at least a part of first diodes (12) are mounted on the substrate, and a reactor (8) is connected outside of the exterior between the converter (10) and the smoothing condenser (5).

12. A power module as set forth in claim 8, wherein a reactor (16) is connected in parallel to the converter (10), and a third diode (17) is

reversely connected between the reactor (16) and the smoothing condenser (5)

13. A power module as set forth in claim 8, wherein a fourth diode (18) is forwardly connected in parallel to the converter (10), and a reactor (19) is connected between the fourth diode (18) and the smoothing condenser (5).

14. A power module for AC/AC power conversion is a power module in which multiple converter components constituting a multiple phase converter (10), and multiple inverter components constituting a multiple phase inverter (20) can be mounted on a substrate which has been formed necessary wirings, the power module is arranged in that at least a part of converter components, at least a part of smoothing condensers, and at least a part of inverter components complying with required specification of the power module are mounted on the substrate, and that necessary jumper means are provided.

15. A power module as set forth in claim 14, further comprising junction means to which a smoothing condenser (5) can be connected.

16. A power module as set forth in claim 14 or claim 15, wherein a three phase converter (10) is employed as the multiple phase converter (10) which can be mounted on the substrate, and a three phase inverter (20) is employed as the multiple phase inverter (20) which can be mounted on the substrate.

17. A power module as set forth in claim 14 or claim 15, wherein a three phase converter (10) comprising a pair of transistors (1) serially connected

to one another for each phase, and diodes (2) each connected in parallel to each transistor (1), is employed as the three phase converter (10), and at least a part of diodes (2) and/or at least a part of transistors (1) and diodes (2) complying with required specification of the power module are mounted on the substrate, and necessary jumper means are provided.

18. A power module as set forth in claim 14 or claim 15, wherein a three phase converter (10) comprising a pair of transistors (1) serially connected to one another for each phase, and diodes (2) each connected in parallel to each transistor (1), is employed as the three phase inverter (10), and at least a part of transistors (1) and diodes (2) complying with required specification of the power module are mounted on the substrate, and necessary jumper means are provided.

19. A power module as set forth in claim 14 or claim 15, wherein a three phase converter (10) comprising transistors (11) serially connected to one another and a pair of first diodes (12) reversely connected for each phase, and a diode bridge (13) having a pair of connection points opposing to one another, each of the connection points being connected to the emitter terminal of the transistor (11) and the collector terminal of the transistor (11), and having another pair of connection points which are determined to be input and output points, is employed as the three phase converter (10), and at least a part of transistors (11), the diode bridge (13), and the first diodes (12) complying with the required specification of the power module are mounted on the substrate, and necessary jumper means are provided.

20. A power module as set forth in claim 14 or claim 15, wherein a three phase converter (10) comprising transistors (11) serially connected to one another and a pair of first diodes (12) reversely connected for each phase, and a diode bridge (13) having a pair of connection points opposing to one another, each of the connection points being connected to the emitter terminal of the transistor (11) and the collector terminal of the transistor (11), and having another pair of connection points which are determined to be input and output points, is employed as the three phase converter (10), and only at least a part of first diodes (12) complying with the required specification of the power module are mounted on the substrate, and necessary jumper means are provided.

21. A power module as set forth in claim 16, wherein a three phase converter (10) comprising transistors (11) serially connected to one another and a pair of first diodes (12) reversely connected for each phase, and a diode bridge (13) having a pair of connection points opposing to one another, each of the connection points being connected to the emitter terminal of the transistor (11) and the collector terminal of the transistor (11), and having another pair of connection points which are determined to be input and output points, is employed as the three phase converter (10), at least a part of transistors (11) and the diode bridge (13) complying with the required specification of the power module are mounted on the substrate, and at least a part of first diodes (12) complying with the required specification of the power module are mounted on the substrate, and

necessary jumper means are provided.

22. A power module as set forth in claim 16, wherein a three phase converter (10) comprises transistors (11) serially connected to one another and a pair of first diodes (12) forwardly connected for each phase, and pairs of second diodes (15) each reversely connected between the emitter terminal of the transistor (11) and the collector terminal of the transistor (11), each pair of second diodes being serially connected to one another, is employed as the three phase converter (10), and at least a part of transistors (11) and second diodes (15) complying with the required specification of the power module are mounted on the substrate, and at least a part of first diodes (12) complying with the required specification of the power module are mounted on the substrate, and necessary jumper means are provided.

23. A power module as set forth in claim 16, wherein a three phase converter (10) comprising transistors (11) serially connected to one another and a pair of first diodes (14) forwardly connected for each phase, and pairs of second diodes (15) each reversely connected between the emitter terminal of the transistor (11) and the collector terminal of the transistor (11), each pair of second diodes (15) being serially connected to one another, is employed as the three phase converter (10), and only at least a part of first diodes (14) complying with the required specification of the power module are mounted on the substrate, and necessary jumper means are provided.

24. A power module as set forth in claim 17, wherein only at least a part



of diodes (2) are mounted on the substrate, and junction means are provided for allowing the reactor (8) being connected between the converter (10) and the smoothing condenser (5).

25. A power module as set forth in claim 20, wherein only at least a part of diodes (2) are mounted on the substrate, and junction means are provided for allowing the reactor (8) being connected between the converter (10) and the smoothing condenser (5).

26. A power module as set forth in claim 23, wherein only at least a part of first diodes (12) are mounted on the substrate, and junction means are provided for allowing the reactor (8) being connected between the converter (10) and the smoothing condenser (5).

27. A power module as set forth in claim 22, wherein a reactor (16) is connected in parallel to the converter (10), and a third diode (17) is reversely connected between the reactor (16) and the smoothing condenser (5).

28. A power module as set forth in claim 22, wherein a fourth diode (18) is forwardly connected in parallel to the converter (10), and a reactor (19) is connected between the fourth diode (18) and the smoothing condenser (5).